**CLASSROOM EXERCISES – Chapter 1**

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| The classroom exercisesthat follow appear *only here,* in the instructor’s manual. Feedback for the exercises is immediately below the exercises themselves and in PP 1.9, “Feedback for Classroom Exercises.” Students do not have access to *either the questions or the answers*.  The purpose of keeping the exercises only in the instructor’s manual and PowerPoints is to allow you to use them as class discussion items, or for homework, if you should choose to do so. |

1. Misha Pauley stood at the front of his classroom and smiled broadly as his students filed in for their first meeting. He was excited about his first day. He had his notes, motivation plan, and management system ready. He was confident that his double major in history and English would make him a stellar teacher. He was especially lucky in that he'd obtained an emergency certificate and hadn't been forced to waste all that time in teacher education classes. If Misha's experience is consistent with patterns identified by research, is Misha likely to be relatively successful or relatively unsuccessful in his first year of teaching? Explain.

2. A sixth-grade teacher presents an introductory math lesson on multiplying fractions. During the lesson, she notices that several of the students ask for clarification of the terms *numerator, denominator,* and *reduce.* She reflects that evening after school, and plans to go back and review the basics of fractions by using concrete materials (manipulatives) that will allow her students to understand these abstract concepts. What concept from the chapter is the teacher best illustrating by using the manipulatives to illustrate multiplication of fractions?

3. In general, biology teachers carefully and accurately explain the process of photosynthesis in green plants. Yet many learners mistakenly believe that we “feed” green plants, much as we feed animals, instead of understanding that green plants manufacture their own food. Explain how each of the types of knowledge described in the chapter is required to deal with this problem.

4. We see a person struggle to solve a brain-teaser, simply for the experience of solving it. We conclude, “People have an innate desire to understand how the world works. When they don't, they struggle until they do.” Of the Important Concepts that are listed at the end of the chapter, which two are best illustrated by our conclusion? Explain.

5. The process of making decisions is essential in teaching. Assuming teachers are reflective, which of the Important Concepts at the end of the chapter is most important in the process of making decisions? Explain.

**FEEDBACK FOR CLASSROOM EXERCISES**

1. If Misha's experience fits patterns identified by research, he is likely to be somewhat unsuccessful. His double major doesn't ensure that he has the pedagogical content knowledge to be an effective history or English teacher, and his lack of knowledge of learners and learning is likely to detract from his effectiveness. His thinking illustrates the misconception that majoring in a subject provides all the knowledge needed to teach the subject.

2. Knowing that concrete examples are necessary to understand abstract ideas and being able to prepare the concrete examples illustrates pedagogical content knowledge.

3. Knowledge of content is required to understand the process of photosynthesis. Pedagogical content knowledge is required to enable teachers to represent the process of photosynthesis in such a way that students don’t confuse it with the intake of food–as occurs with animals. General pedagogical knowledge is needed to have the questioning skills, for example, to guide learners’ understanding, and knowledge of learners and learning is required to understand why learners are likely to have the misconception in the first place and what can be done to help eliminate it.

4. The concept best illustrated by the comment is *theory.* A theory is a set of related principles that is used to explain observations. We explain the person's efforts based on the theory that people have a need for order, predictability, and understanding. This is the basic premise on which cognitive theories of motivation are based.

5. The two concepts are *research* and *theory.* Research and theory make up the knowledge base teachers use for making decisions.